Easy Ways to Save Water

Water is a limited resource and it is essential to each of us every day. Water conservation is important. Hard rock groundwater levels may fluctuate throughout the year and decline dramatically in summer months. Monitoring the water level in your well provides the information you need to develop a water supply trend to help budget your water use.

To increase water use efficiency, homeowners can:

- Detect and repair water leaks
  - A small drip can waste 70 gallons of water a day
- Use water efficient plumbing and appliances
  - A high-efficient clothes washer can save 20 gallons per load
  - Ultra low flow toilets use about 1.6 gallons per flush
- Consider dual plumbing systems
  - Gray water, which is recycled shower, bath, and laundry water, can be used to keep thirsty plants alive, but some precautions should be followed.
  - Check your local County or City Building Codes
- Harvest rain water for irrigation
  - Collect the rain water from your homes rooftop and filter the water. It can be stored in a sump or tank for later.
- Purchase an on-demand hot water system
  - On-demand hot water is heated instantly, so you waste less water and save energy. Conventional tank water heaters heat water 24-hours a day, 365 days a year - and you pay for the energy it takes to keep the water hot.
- Plant drought-tolerant landscaping
  - A native or local plant nursery in your area should be able to suggest drought-tolerant landscaping for your region.
- For additional water conservation resources and links, go to: www.owue.water.ca.gov

Where can I find more information?

Most of the information presented in this guide was taken from an existing Department of Water Resources Guide titled "Water Facts No. 1, Ground Water in Fractured Hard Rock" and is summarized here. More information about California's groundwater can be viewed online at www.groundwater.water.ca.gov/groundwater_basics/ or contact:

California Department of Water Resources

Northern District

2440 Main Street
Red Bluff, CA 96080
(530) 529-7300

San Joaquin District

3374 East Shields Avenue
Fresno, CA 93726
(559) 230-3300

Central District

3251 "S" Street
Sacramento, CA 95816
(916) 227-7561

Southern District

770 Fairmont Avenue, #102
Glendale, CA 91203
(818) 543-4600

This brochure can be accessed online at
www.sjd.water.ca.gov/watershed/

This guide was developed by the California Department of Water Resources' Watershed Program, Central Valley Regional Water Quality Control Board, and Sierra Foothill Conservancy, in cooperation with the Central Sierra Watershed Committee, a diverse partnership of tribes, agencies, organizations and citizens striving to promote the quality, quantity, and aesthetic values of water resources in the Central Sierra Nevada Mountain Range through the conservation and restoration of our watersheds.

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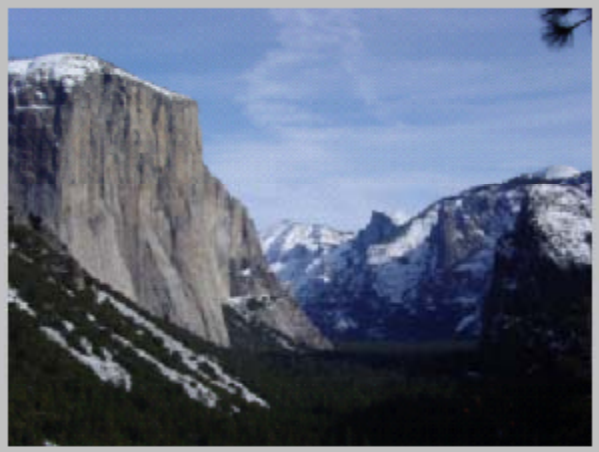


Photo: Scott E Sanders

Information for Private Well Owners living in California's Fractured Hard Rock Groundwater Areas

Where do I get my groundwater?

In the mountainous areas of California, groundwater can be found in cracks or fractures of hard rocks. In general, all mountain and hilly areas of California are composed primarily of hard rock. Only a small quantity of ground-water is stored in the fractures of these rocks.

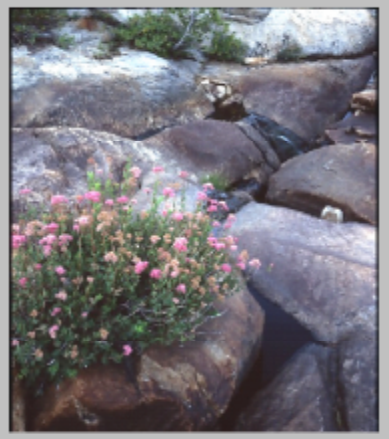


Photo © Heidi Vetter

How do rocks get fractured?

Rock fractures are caused by stress. Rocks may fold, faults may move, and rocks may expand when exposed to the weather. Ice, plant roots, or water flow can enlarge these fractures. Fractures may be large or small and may run up and down or sideways.

Most fractures are found in the upper few hundred feet of rock. The deeper you go, the smaller the width of the fracture.

A thin layer of soil, weathered rock, or alluvium covers some of these hard rock formations. In areas where the covering over the hard rock is saturated, this unconsolidated material provides additional water storage for nearby wells.

So, the water I use everyday comes from a crack in a rock?

What is the relationship of fractures to groundwater?

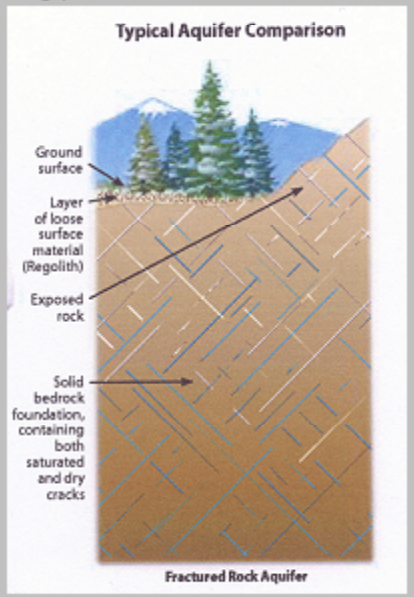
Fractures are the only way groundwater can be stored in hard rock. How much water you can get out of the hard rock depends on:

- size and location of the fractures;
- interconnection of the fractures; and
- amount of material that may be clogging the fractures.

Water that falls on land may run off on the surface in creeks and rivers or it may infiltrate into the ground and the underlying rock fractures. It is this infiltration of water that recharges groundwater supplies in sandy, loose material and in fractured hard rock.

How much water is stored in hard rock?

The total volume of water stored in fractured hard rock is estimated to total less than 2 percent of the rock volume. This amount is small, so groundwater levels and a well's yield can decline dramatically during the summers of dry years or during periods of increased demand.



How much water will my well yield?

The amount of water varies from well to well. A reliable well must intersect connected water-bearing fractures. Good conditions include:

- large amounts of fractures;
- good interconnection between fractures;
- wide, large, clean fractures;
- a reliable source of recharge;
- a large quanitity of water in storage; and
- proper installation of the well, including removal of granular debris that may clog the fractures.

How do I get started?

Consult a professional well-drilling firm with a California C-57 contractor's license. Pump tests will need to be performed to verify the existence of a suitable and sustained water supply. The contractor hired to drill the well can perform these tests. Consult with your county well permitting agency for specific water well testing requirments for any type of well.

To check a license, call the contractor's state license board at (800) 321-2752 or visit their website at www.cslb.ca.gov.

Protecting Your Well

The responsibility for ensuring a safe supply of private well water rests solely with the owner. Extra care should be taken to protect the quality of your ground-water supply. Here are some items to consider:

- Use licensed contractors for all pump and well work.
- Test your water for bacteria at least once a year.
- Keep hazardous chemicals away from your well.
- Check your well cover to make sure the well is sealed.
- Keep good records of any well work and testing results.
- Be alert to changes in your water or well site.

Contact the county health department for information on testing the water quality in your well and further information.